

A systematic revision of the Tchagra Shrike

by

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The endemic Red-winged Tchagra Shrike, *Tchagra tchagra* (Vieillot) has revealed, during a recent study of its constituent populations, a rich field of study from the taxonomist's viewpoint.

Formerly all that had been recorded in this respect was that two birds from Natal were found by Reichenow in 1903 to be atypical of the rest of the available material and so were tentatively described as a new variety. His suggestion that further study would be required to confirm the discreteness of this form has apparently not been followed up and the validity of var. *natalensis* has never since been questioned but invariably accepted by workers as a second subspecies.

Had the bird itself been at all common in the more northerly reaches of its range, such an investigation might well have been prompted but although quite plentiful from the south-west Cape up to the Great Kei River, it becomes sparse over the Transkei, Pondoland, Natal, Zululand and Swaziland. From the Transvaal there are sporadic but still unconfirmed reports of its presence. Such a diminution in numbers northwards is likewise demonstrated in the available series of skins borrowed from various South African museums. The assembled series comprised 25 skins from the western and southern Cape, 48 from the eastern Cape to the Kei valley, 6 from the Transkeian territories and Pondoland, 9 from Natal, and one each from both Zululand and Swaziland.

GEOGRAPHICAL VARIATION

This revision was initially prompted by the recent acquisition of a series of birds from the Little Karroo which were found to be decidedly grayer ventrally, somewhat colder dorsally and longer billed than their counterparts from the eastern Cape and Natal. Borrowed skins from other parts of the southern and western sectors of the Cape Province revealed that this form with slight divergence and individual variation also inhabits most of the country from about the Caledon district eastwards to Uitenhage. From the latter district eastwards a marked shift in the structural and colour facies of the Tchagra Shrike becomes apparent, but although birds from the Fish River valley in the eastern Cape could be regarded as another subspecies, further accentuation of these changes is progressive in a north-easterly direction, so that birds of the Kei valley are still more strikingly differentiated. These east Cape birds are shorter billed, warmer rufous over the upperparts and lighter ventrally. Another prominent feature is the pronounced olive wash to the flanks. Although birds of the Transkei and Pondoland are even redder dorsally and more heavily washed with olive over the thighs, flanks and under tail-coverts, these were considered best grouped with the other eastern Cape populations. It is only upon reaching Natal that another marked stepping in the observed character gradients occurs. Again the beak becomes noticeably shorter, but, also not unexpectedly, the bird itself is substantially smaller as revealed by the wing-measurements. There is, in addition, a further suppression and lightening of ventral grey and the development of a more prominent white abdominal patch. Dorsally the rufous is even warmer.

From these studies it is evident that not only is Reichenow's var. *natalensis* a good subspecies, but birds from Grahamstown eastwards to the borders of Natal are also clearly demarcated from their contiguous populations and require a name of their own. For this new race the name *Tchagra tchagra caffrariae* is proposed as being descriptive of its range.

NOMENCLATURE

Stark & Selater (1901) state that Levaillant first found this species in the Humansdorp district, but Vieillot, in 1816, actually named it from the Gamtoos River. Recently obtained topotypical material from a locality near the Gamtoos River in the rain-shadow of the Winterhoek mountains was found to be similar to all the birds occurring to the west of this point. This western assemblage of populations, therefore, constitutes the nominate race.

Consideration was given to the name *Tchagra tchagra pondoensis* which appeared in a check list of birds of Port St. Johns by Winterbottom & Hare (1947). However as no description can be found it must be considered a *lapsus calami* for *T.t. natalensis* and thus unavailable for the new eastern Cape race.

TAXONOMIC CHARACTERS

As this species is particularly common in valley bushveld vegetation of the eastern Cape a good representative series of specimens is available. This has permitted the viewing of a clear picture of the bird's transitional stages in its character metamorphosis from the nominate race to the one inhabiting the eastern Cape viz. *T.t. caffrariae*.

The characters involved in this genetic shift from one subspecies to another are:—

1. Reduction of bill length,
2. warmth of dorsal rufescence,
3. degree of olive washing to flanks and
4. degree of departure from a dark pure ventral grey to lighter tints of grey including an accentuation in the development of the whitish abdominal feathering.

The above characters become more accentuated in a north-easterly direction in successive series of populations from various localities. The interesting part is to see how the steps in the levels of character change vary for each character or combination of characters.

Thus a study of a series of specimens from Uitenhage showed that characters 1 and 4 are the first to be affected to some extent. Characters 2 and 3 only start becoming visibly changed in a good series from the Fish River valley at Committees, Albany district. In the same series characters 1 and 4 have already, with few exceptions, reached a stage of modification which could be considered typical of *T.t. caffrariae*. Proceeding yet further north-eastwards, an ample series of skins from the Kei River valley reveals clearly that all the characters concerned have evolved to the level typical for the new eastern Cape race. It should be pointed out that various other specimens from points between the Fish and Kei rivers are close enough to rank as members of *T.t. caffrariae*. Even the Fish River birds are sufficiently transformed to be grouped under this race. Intergrading populations occur really only about the Uitenhage and western Albany districts.

It is appreciated that the above picture of such taxonomic changes in east Cape populations of the *Tchagra* could represent only the merest approximation to what the position over the

area as a whole really is. Any such discrepancy could stem from much interdigitation of various populations over the full width of the belt of the species' largely littoral disposition. For example limited material suggests that the birds from the Patensie area (Humansdorp district) are somewhat paler below and rather more olive-flanked than Uitenhage birds. Another possible complicating factor would be the extent of local and seasonal movements of the birds about a comparatively small section of country. However, judging from the Tchagra's habits and physical proportions it would not be expected that it would be given to much extensive local migration.

Thus it will have been noticed that characters (1 and 4) and (2 and 3) were more or less associated together in the character shift between the nominate race and *T.t. caffrariae*, the latter character combination appearing last. It could well be entirely fortuitous that this arrangement occurred and that each character change could in other subspecies proceed quite independently of any others. Another consideration is that if each such taxonomic character is indeed genetically independent of any one or more others, then we should find that each could proceed at a different rate of transformation. This appears to be borne out by the fact that character 2, although clinal from south-west to north-east, was found in the Tchagra Shrike to change the slowest of all so that although a reddening of the backs of some specimens is already foreshadowed in the nominate race, even the Natal birds are not all consistently warmer but a few examples are still as cold and brown as any typical specimen of the western Cape. It is merely that the race *T.t. caffrariae* contains more individuals with redder backs than is the case with specimens of the nominate subspecies, while in *T.t. natalensis* there are again more individuals with even redder backs than is found among individuals of *T.t. caffrariae*. In contrast to this, character 3 is virtually non-existent in the nominate race, reaching a peak in Pondoland examples of *T.t. caffrariae* and again diminishing somewhat in *T.t. natalensis*. Character 4, moreover, exhibits a slightly different pattern in that it is more even in its clinal change and also more complete in covering all individuals. Thus Natal birds are all consistently lighter below, showing none of the dark greyness so typical of members of the nominate race.

The foregoing are merely some examples that hint at the complexity that could underlie supposedly simple and orthodox geographical variation. This appears to be supported in some measure by the following statement made by Miller (1941) in his discussion of speciation in the genus *Junco* "... there are many independent geographic gradients in characters that run in different directions through the area". It could well be that this statement has a wider application than that for which it was intended and that not only could geographic character gradients run independently of each other through an area but that these gradients need not necessarily all proceed at the same regular or smooth degrees of change. It is not intended that this discussion be regarded as an argument against the concept of the subspecies but rather to draw attention to the pitfalls and possible reasons for so much of the disagreement among taxonomists especially at infraspecific levels.

TAXONOMIC ARRANGEMENT

1. *Tchagra tchagra tchagra* (Vieillot)

Thamnophilus tchagra Vieillot, 1816. N. Dict. d'Hist. Nat. 3: 317. Gamtoos River, eastern Cape Province, ex Levaillant.

Description: Sexes similar in plumage. On upperparts, the crown varies least in colour, being a dull dark reddish-brown. The rest of the dorsal surface is variable, but generally dark olive, overlaid to a greater or lesser extent by the head-top colour. In specimens with a purer

olive back, the crown colour is sharply contrasted, otherwise the colour of the head-top fades imperceptibly into the general mantle coloration. Lighter tints of olive are often located about the hind neck and towards the sides. Superciliary stripe off-white.

The underside is a fairly dark ash-grey, paler abdominally, and with a whitish throat. Over the flanks there are usually traces of an olive wash, but in most specimens this is hardly noticeable.

Variation within this race affects the ventral colouring, in that some coastal birds are not as pure a grey as all inland examples but acquire a faint wash of a dull pinky vinaceous. This could be attributable to soil staining. In this race the bill attains its maximum size and is often strongly hooked.

Measurements:

Males: wing 82·2–87·5 (84·3) mm. 9 specimens
tail 91·2–96·7 (94·3) mm. 4 specimens
culmen 28·1–34·4 (31·26) mm. 9 specimens

Females: wing 79·0–87·0 (82·2) mm. 13 specimens
tail 87·7–98·8 (90·4) mm. 8 specimens
culmen 28·1–32·0 (30·07) mm. 13 specimens

Material examined: Hermanus 1, Zoetendalsvlei 1, Robertson 2, Sevenweeks Poort 1, Calitzdorp 1, Still Bay 6, Swellendam 2, Oudtshoorn 2, Klaarstroom 2, Knysna 3, Willowmore 1, Steytlerville 1, Uitenhage 2. Total 25.

Range: Generally listed as occurring no further west than Hermanus but recent check lists suggest that it penetrates quite far into the western Cape, *vidé* Lists of the Birds of the Worcester (1962) and Clanwilliam (1963) districts by Prof. J. M. Winterbottom. Eastwards this race continues along the coast and Little Karroo up to the western limits of the Uitenhage district; also sparingly penetrates the Great Karroo.

2. *Tchagra tchagra caffrariae* subsp. nov.

Type: Female, adult. Bolo-Kei Bridge, Stutterheim district, eastern Cape Province. 2nd April 1965. In the collection of the East London museum. E.L. Mus. No. 11200.

Description: Crown warmer than that of the nominate race, having a more reddish hue, this a somewhat richer shade than Ridgway's Auburn (Pl. II, 1912). The colour of the crown also invades and brightens the upperparts of the body, but there is some variation and other specimens are again more olive over the mantle. The warmer dorsal coloration is correlated with an invasion of the whitish superciliary stripes by light buff, as well as a marked increase in the olive wash to the flanks, under tail-coverts and thighs, so that this character is now a prominent feature. Over rest of underparts, the pure grey of the nominate race is replaced by lighter tints, the belly now assuming a distinct whitish patch. The breast feathers are often faintly tinged with olive. The wing-coverts do not vary to any marked degree and are generally a vinous-chestnut.

Similar in size to the nominate race, although males average smaller.

The culmen length is noticeably shorter in both males and females averaging up to 2·5 mm. less in males. The culmen height (measured at nostrils) however remains unchanged.

Measurements:

Males: wing 79·5–84·5 (82·0) mm. 14 specimens
 tail 88·5–94·7 (91·9) mm. 10 specimens
 culmen 26·6–30·9 (28·7) mm. 13 specimens

Females: wing 78·5–86·0 (82·1) mm. 22 specimens
 tail 87·8–97·0 (92·5) mm. 18 specimens
 culmen 26·7–30·0 (28·3) mm. 21 specimens

Material examined: Committees Drift 16, Kei Valley 17, King William's Town 5, Peddie 2, Debe Nek 3, Gqunge 1, Port St Johns 4. Total 48.

Measurements of the type: culmen (from base) 28·7 mm.
 tail 93·9 mm.
 wing (flattened) 84·0 mm.

Range: Occurs from the Fish River in the eastern Cape, eastwards to the approaches of Natal.

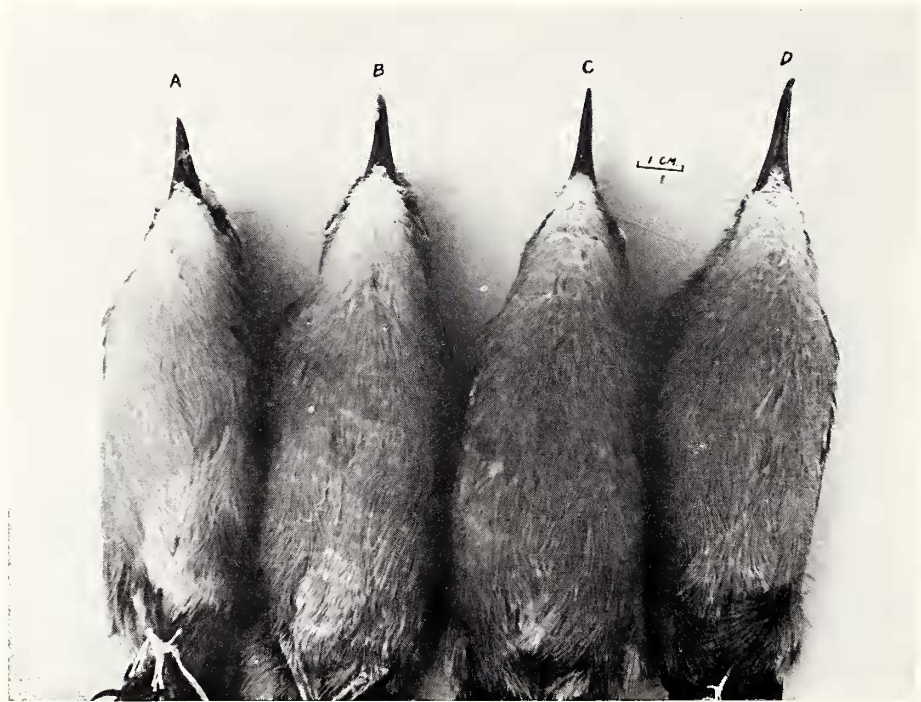
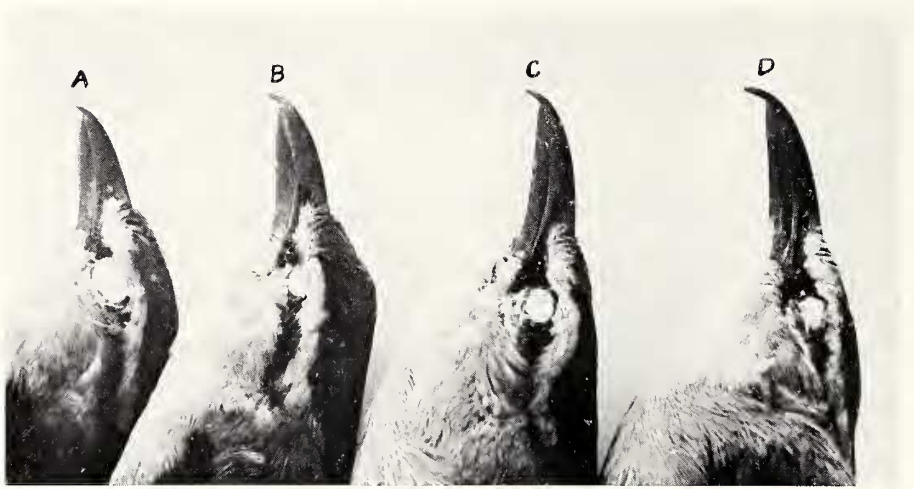
Remarks: To the west of its range *T.t. caffrariae* intergrades with the nominate race in and around the Uitenhage district while a single specimen from Embotyi which closely resembles *T.t. natalensis* would appear to indicate a zone of intergradation with *T.t. natalensis* towards the approaches of the Natal border. Although the four Port St. Johns birds exhibit some genetic shift in characters towards those of *T.t. natalensis* especially in the redder upperparts, they are in size, etc., closer to the eastern Cape race.

3. *Tchagra tchagra natalensis* (Reichenow)

Pomatorhynchus tchagra var. *natalensis* Reichenow, 1903. Vog. Afr., 2: 544. Umgeni R., Durban, Natal.

Description: In plumage coloration this race merely carries the character shift displayed by *T.t. caffrariae* a step further with the dorsal colours again exhibiting most variability. Ventrally *T.t. natalensis* has none of the particular rich ashy grey colour associated with the nominate race or even *T.t. caffrariae* to a lesser extent, but displays various lighter hues of grey. The sole exception in this clinal pattern of colour change is the olive washing to the flanks which in *T.t. natalensis* diminishes somewhat in extent especially if compared with Pondoland birds.

In mensural characters there is a difference in overall size and culmen length, these being noticeably smaller in *T.t. natalensis* as compared with *T.t. caffrariae*. The culmen although being as much as 3 mm. shorter than *T.t. tchagra* and 1 mm. shorter than *T.t. caffrariae* (i.e. in combined male and female averages) is again not smaller in height. This gives the bill of *T.t. natalensis* a more robust appearance when viewed laterally. This structure is also not as hooked as in the nominate race. (See Figs. 1 & 2.)



EXPLANATION OF FIGURES

Figs. 1 and 2 are designed to depict the differences between the three races of *Tchagra tchagra*. The birds of Fig. 1 show a lateral view of the heads of the races while the same specimens in the same order are shown in ventral view in Fig. 2. The races are numbered thus:

- A. *T.t. natalensis* (Reichenow)
- B. *T.t. caffrariae* Quickelberge
- C. *T.t. tchagra* (Vieillot)
- D. *T.t. tchagra* (Vieillot)

Specimen D. is an extreme example of bill development in the nominate race. The others are average specimens.

Fig. 1. clearly illustrates the striking changes in the configuration of the bill from north-east to south-west. This involves only a lengthening of the bill while its height remains virtually unchanged.

Fig. 2 is intended to illustrate some of the plumage differences between the races, thus specimens C. and D. are dark grey with a minimal amount of belly white. Specimen B. is somewhat lighter showing more mid-abdominal white, while specimen A. is even paler below with a still more prominent abdominal white patch while the overall size difference is also obvious.

Measurements:

<i>Males:</i>	wing	76·5–81·0 (79·5)	mm.	8 specimens
	tail	83·6–90·3 (86·8)	mm.	5 specimens
	culmen	26·2–28·4 (27·35)	mm.	7 specimens
<i>Females:</i>	wing	77·5–80·5 (79·0)	mm.	2 specimens
	tail	82·2–90·7 (86·7)	mm.	2 specimens
	culmen	27·0–29·6 (28·3)	mm.	2 specimens

Material examined: Embotyi (Pondoland) 1, Umgeni River (Natal) 1, Durban 1, Mount Edgecombe 2, Umhlanga Rocks 3, Shongweni 2, Ingwavuma (Zululand) 1, Indhlovodwalilie (West Swaziland) 1. Total 12.

Range: From the south-western borders of Natal, north-eastwards to include most of midland and coastal Natal, Zululand and parts of Swaziland. Probably also sparingly penetrates the Transvaal lowveld as it was recorded by Calder (1948) in his notes of the birds of the Kruger National Park, in which he states that a specimen was seen north of Shingwedzi. A still more interesting extension of range is claimed for *Tchagra tchagra* in a list of the birds of the Percy Fyfe Nature Reserve 23 miles north of Potgietersrust by van der Merwe and Pienaar (1959).

Remarks: Any definite verdict on the racial affinities of Transvaal birds will have to remain in abeyance until such time as specimens are produced for study. Intergradation with *T.t. caffrariae* judging only from a single sub adult specimen from Embotyi probably occurs towards the approaches of the Natal border in eastern Pondoland.

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